

REMARKS

Upon entry of the present Amendment, claims 1-37 will be pending. Of the pending claims, claims 1-8, 12, 13 and 32-35 have been withdrawn. Claims 9-11, 14-33, 36 and 37 are currently being examined. No new matter has been introduced into the above-identified application.

Claim Objection

The Examiner has objected to claim 30 because it recites the limitation “the electrical terminal device”. The proper amendment has been made in claim 30, and this objection is now remedied and should therefore be withdrawn. Claim 27 has also been amended to clarify the claim and remove a possible ambiguity.

Rejection Based on Prior Art

The Examiner has rejected claims 9-11, 14-33 and 36-37 under 35 USC § 103(a) as allegedly being unpatentable over DE 196 090 252 (Brose), in view of Mueller, US Patent No. 7,160,047.

Applicant respectfully traverses this rejection.

Applicant urges that the Examiner has incorrectly disregarded the preamble of the present claims. The instant preamble cannot be ignored since there is a clear nexus between the preamble and the body of the claims and the preamble adds life and meaning to the claim.

The object of the present element and the problem solved in the present invention is to permit a high quality electrical connection between an electrical connection device such as a spade terminal and a sheet metal part, via a hollow fastener element which is riveted to the sheet metal part.

The act of riveting a hollow fastener element to a sheet metal part ensures a sufficient deformation of the sheet metal part, particularly in the area of the rivet connection and in the area

of the features providing security against rotation, that an electrical connection of good quality is ensured between the hollow fastener element and the sheet metal part.

A problem with such resulting component assemblies is that they are frequently coated either with a layer of thin oil for corrosion protection or possibly already painted so that an electrically poorly conducting film of oil or paint is present on the element. It is very difficult to ensure a high quality electrical connection to the element and thus via the element to the sheet metal part. On the one hand, the part may need degreasing if a film of oil is to be removed (and then there may in any event be a thin layer of rust which prevents a high quality electrical connection) or a layer of paint has to be removed from the hollow fastener element to ensure that a good electrical contact is achieved there between an electrical connection device terminal and the element. Such scraping away of a paint layer is completely unreconcilable with modern production methods. It is basically a hand operation and takes a relatively large amount of time. If it is done badly, then again there is only a poor electrical connection. In contrast, the person skilled in the art recognizes that it is much easier to keep the bolt used to secure the electrical connection device or spade terminal to a hollow fastener element metallically clean and, if this is an element which cuts its own thread, then a good contact can be achieved between the head of bolt and the electrical connection device or spade terminal. Moreover, a very good electrical connection can also be achieved between the thread of the bolt and the hollow fastener element, since the act of the bolt cutting its own thread in the hollow fastener element ensures that the metal is scraped away here and there is a good metallic transition is achieved between the bolt and the hollow fastener element, and thus a good electrical connection.

The addition to claim 9 emphasizes this problem and its solution. Claim 9 not only has a preamble statement but it also has other features in the body of the claim which complement the preamble.

In claim 30, the electrical connection between the fastener element and the sheet metal part is spelled out in lines 5 to 7 of the claim and, with the additions to claim 30, the electrically conductive path through the component assembly is completely clear.

Applicant disagrees with the Examiner's comments concerning Brose.

In the penultimate paragraph on page 3 the Examiner first asserts that Brose discloses a mount 33 for the rotationally secure attachment between the electrical connection device to the fastener element. The Examiner seems to be referring here to Fig. 3c of Brose where the corresponding reference numerals are to be found. However, Brose itself says nothing about a mount for the rotationally secure attachment of an electrical connection device. Instead, the reference numeral 33 is a peeled region of the stepped bush formed by an annular cutting tool 140, the annular cutting edge 141 of which bites into the stepped bush and forms the outwardly peeled region 33. It is neither a mount for an electrical connection member nor is any electrical connection device provided or even mentioned in Brose. It is also difficult to see how a peeled region such as 33 could ever function as a mount for an electrical connection device and in any event this is simply not what is suggested in Brose. The peeled region 33 simply serves to secure the component 10 (actually stated to be a cable pulley) on the bolt member, with the cable pulley actually being rotatable around the axis of the bolt member.

Moreover, the Examiner is wrong when the Examiner interprets Fig. 4 as showing a thread cutting or a thread forming screw. There is nothing in the corresponding description of Fig. 4 in Brose which supports such a contention. A thread is simply illustrated there with the

normal drawing convention of two parallel lines and Brose itself says nothing about how the thread is formed. If nothing to the contrary is said, then it would normally be assumed that the thread was cut with a thread cutting tool and thereafter a normal screw is engaged with it. It should be noted, however, that such a screw is not then a thread cutting or thread forming screw and would not necessarily ensure a good electrical connection at this point. It all depends on how contaminated the thread is before the bolt is screwed to it. In a production situation, for example in making motorcar bodies, where every motorcar is supposed to have an electrically conductive connection at the same point, it would be impossible to rely on a precut thread into which a normal bolt having a thread part is screwed which is not a thread cutting or thread forming thread. Only the use of a thread cutting or thread forming thread will ensure that metallically clean surfaces engage one another and ensure the desired electrical connection at this point.

Applicant submits that the Examiner's analysis of Brose is wrong. Applicant urges that even a combination of Brose and Muller does not actually lead to the presently claimed invention.. Muller also does not show the use of a thread forming or thread cutting screw and is also not concerned with providing an electrical connection. In fact the only mention of an electrical connection in Muller is to be found in column 8, lines 10 to 18 where it is stated that the auxiliary joining part can be a plastic part and can, if required, be provided with a metallic coating (for example for decorative purposes or to ensure electrical conductivity). There is however no reference to an electrical connection between an electrical terminal and a sheet metal part.

The Muller reference also only contains one reference to a thread forming or cutting screw and indeed at col. 18, lines 49 to 54, where it is simply mentioned that the hollow body element can also be designed for use with a thread forming or thread cutting screw. This

disclosure, however, does not amount to recognition that the use of a thread forming or thread cutting screw generates an electrically conductive path between the screw and the hollow body element. This is also an important recognition underlying the present invention.

Applicant submits that the Examiner is reading more into the Brose document than is actually there.

In view of the foregoing amendments and arguments, Applicants respectfully submit that the above-referenced application is in condition for allowance, and a Notice of Allowance is respectfully requested.

Should the Examiner have any questions or comments regarding this matter, the undersigned may be contacted at the below-listed telephone number.

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